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14. ABSTRACT People differ in their susceptibility to abuse alcohol and drugs, and the conditions that lead to abuse and dependence are not the same in everyone. Some people are susceptible because they experience particularly positive effects from alcohol and drugs; often, the same people have problems controlling their behavior. They are impulsive; they seek out novel and exciting experiences; and they may be influenced by other rewards, such as those associated with gambling or risky sexual behavior, even if the long-term consequences of those behaviors are harmful. This study will evaluate the relationship between the response to a stimulant drug and behavioral control. First, we will administer 10 mg <i>d</i> -amphetamine and select two groups of individuals: a group that reports strong stimulant effects (<i>Responders</i>) and a group that reports no stimulant effects (<i>Nonresponders</i>). Next we will record event-related brain potentials (ERPs) while participants perform tasks that tap aspects of behavioral control: response inhibition, novelty detection, and reward processing. To evaluate the neural mechanisms involved in these processes, we will record ERPs after placebo, and in a separate session, after 10 mg <i>d</i> -amphetamine. This research will identify aspects of control that differentiate these groups and elucidate the neural systems that mediate these differences. As such, the findings of this research may lead to better treatments for alcohol and drug abuse, particularly for people who abuse these drugs because of their stimulating effects.					
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Amphetamine Challenge:
A Marker of Brain Function that Mediates Risk for Drug and Alcohol Abuse

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Introduction

People differ widely in their susceptibility to abuse alcohol and other drugs, and the conditions that lead to abuse and dependence may not be the same in all people. Some people are susceptible because they experience particularly positive effects from alcohol and drugs—the drugs make them feel good. Often, the same people who experience these very positive effects also have problems controlling their behavior. They are impulsive—it may be difficult for them to stop a behavior, even if they realize it could lead to a bad outcome. They seek out novel and exciting experiences, often without considering the consequences, and are often influenced by other rewards. They do things that may lead to short-term rewards, such as gambling or risky sexual behavior, even if the long-term consequences may be harmful. When these characteristics occur together, individuals are more likely to try alcohol or drugs at a young age, to use these substances more heavily, to continue their use, and to develop problems related to their use. We do not know why some people experience more positive—or stimulating—effects of alcohol and drugs, or why this characteristic is sometimes associated with poor control. Using cognitive tasks that invoke specific aspects of behavioral control, it is possible to assess in the laboratory aspects of behavioral control related to risk for alcohol and drug abuse. Event-related brain potentials (ERPs) recorded during performance of these tasks permit evaluation of concomitant neural processing. Thus, in the first phase of this study, we administer to young men and women 10 mg *d*-amphetamine, a drug with stimulant effects that are similar to those of alcohol and other drugs. We record the effects of the drug on their mood, and select a group of people who experience strong, positive feelings from the drug (*Responders*) and a group of people who do not (*Nonresponders*). Then, in two separate sessions, we record ERPs while individuals in these two groups perform tasks designed to tap aspects of behavioral control: response inhibition, novelty detection, and reward sensitivity. In one of the two sessions, we administer a placebo; in a separate session, we administer 10 mg *d*-amphetamine. The research will identify aspects of behavioral control that differentiate *Responders* and *Nonresponders*, and elucidate the cognitive and neural bases of these differences. The results of this study will help us to understand the association between stimulant drug response and behavioral control (i.e., why they occur together in people and how they lead to poor decisions about alcohol and drug use). Thus, the findings of this research may lead to better treatments for alcohol and drug abuse, particularly for people who abuse these drugs because of their stimulating effects, and who make bad decisions about using these substances.

Body: Progress and Problems

Progress

In this section, we state progress made on each of the tasks listed in our Statement of Work. To summarize, we obtained USU IRB and HSRRB approval (the latter on 7/03/08) for the protocol, as well as for amendments that reflect improvements to the original protocol (specified below). We have now begun to recruit and screen participants.

Task 1: Submit protocol to local (USU) Institutional Review Board (IRB). **DONE**

- a. Develop and submit protocol, informed consent documents, and other supporting materials, including questionnaires and other study forms, to IRB. **DONE**
- b. Provide IRB approval letter to USAMRAA. **DONE**

Task 2: Submit protocol and supporting materials to USAMRMC Human Subjects Research Review Board (HSRRB) and obtain HSRRB approval. (Months 1–6). **DONE.**

Note: In addition to obtaining approval for the protocol, we also obtained approval from the USU IRB and the HSRRB for amendments reflecting improvements to the protocol made while we were awaiting initial IRB and HSRRB approval. Those changes are listed here:

1. *Web-based survey.* We developed and completed in-house testing of a web-based survey that will replace a number of our screening and testing instruments. This survey has permitted us to move two segments of our protocol onto the web: (1) general health and demographic screening, previously done (a) on the telephone and (b) using paper-and-pencil inventories; and (2) aspects of personality testing, previously done using a paper-and-pencil inventory. By allowing participants to answer questions on the web, using their own computer, the demands of participating in this protocol will be reduced. Moreover, the data will be automatically scored and will be available for downloading directly into our statistical analysis programs. Thus, the web survey will permit us to screen and test participants, and analyze data, at a faster pace than we'd initially planned. The survey will thereby allow us to compensate for delays related to obtaining IRB/HSRRB approval.
2. *Health Behavior Survey.* We selected an instrument to assess alcohol, tobacco, and other drug use, as well as other risk-taking behaviors (e.g., seatbelt use) in our participants. The *Health Behavior Survey* comprises a subset of questions from the 2002 *Worldwide Survey of Health Related Behaviors Among Military Personnel* (Bray et al., 2003). This will permit us to compare alcohol and drug use and other risk-taking to that among military personnel, thereby increasing the relevance of this research to the military population.
3. *Health assessment.* We combined into one the two health-assessment sessions during which we determine eligibility for this protocol and administer tests for which we are not assessing drug effects. Combining the two sessions into one will reduce significantly the cost, in terms of time and inconvenience, of participating in the protocol. Accordingly, this change will improve our ability to recruit participants, as well as permitting us to determine eligibility more rapidly.
4. *Iowa Gambling Task (IGT).* We implemented a program to administer and score the Iowa Gambling Task (Bechara et al., 1994). The IGT assesses the ability to evaluate immediate and delayed rewards and losses: Participants select from four decks of cards offering different monetary rewards and punishments. Two of the decks offer high immediate gains but would be poor choices over the long run, in that selections from those decks would eventually result in net losses of money. The other two decks represent good choices, offering smaller immediate rewards but yielding modest long-term gains. Performance on the task is measured by a global outcome score, comprising the total number of cards chosen from the high yield decks minus the number chosen from the low yield decks. Low scores reflect poor performance; negative scores indicate a relative preference for choices from the low yield decks. Performance on the IGT has been found to distinguish drug abusers from healthy controls; its addition to this protocol (during participants' first visit to the laboratory)

will allow us to evaluate the relationship between IGT performance and other measures in our battery that are implicated in risk for alcohol and drug abuse.

5. *Continuous Performance Test (CPT)*. We implemented a program to administer and score a version of the Continuous Performance Test that taps response inhibition (Garavan et al., 1999). Poor inhibitory control is a common symptom of a number of pathologies that fall under the umbrella of impulsivity disorders, including alcohol and drug abuse. The failure to develop adequate inhibitory control can have a profound impact on the ability of an individual to gate prepotent yet potentially dangerous behaviors, including alcohol and drug use. The version of the CPT that we propose to use comprises a Go-NoGo task in which the NoGo to Go ratio is low, thereby creating a response prepotency that is difficult to inhibit on NoGo trials. It thus provides a useful test for assessing individual differences in inhibitory control, as measured by errors of commission (i.e., failures to inhibit on NoGo trials). We will administer the 5-min task once before and three times after the capsule is administered in the medication-response session. Its inclusion in this protocol will permit us to evaluate the effects of amphetamine on this measure of response inhibition. Amphetamine is thought to improve inhibitory control, particularly among individuals in whom baseline control is compromised. Thus, the CPT will contribute to our overall goal of evaluating various aspects of inhibitory control in individuals at varying risk for alcohol and drug abuse.
6. *Balloon Analog Risk Task (BART)*. We also implemented the Balloon Analog Risk Task (Lejuez et al., 2002), a measure of risk-taking. In this task, participants pump up a series of simulated balloons. With each pump, points accumulate in a temporary bank (not visible to participants). When a balloon is pumped up past its individual explosion point, the balloon explodes, and all points in the temporary bank are lost. At any point during each balloon trial, a participant may stop pumping the balloon and click the “Collect Points” button. Clicking this button transfers points from the temporary to the permanent repository (visible). A new balloon appears after each balloon explosion or points collection. We will administer this 10-min computerized task at the end of the task battery in each of the two cognitive-testing (ERP) sessions. The BART will provide a behavioral measure of propensity for risk-taking that will supplement our self-report measures, and will allow us to evaluate how risk-taking is related to other risk factors, and how it is affected by amphetamine.
7. *Questionnaires*. Based on a review of the literature, we compiled a battery of questionnaires that assess characteristics related to behavioral control and implicated in risk for alcohol and drug abuse. We will administer these questionnaires on the web (the MPQ) and at the health-screening session (although they will not be used to exclude participants); the resulting data will allow us to characterize more fully differences between *Responders* and *Nonresponders* that may be related to risk for alcohol and drug abuse.

Barratt Impulsivity Scale-11 (BIS-11; Patton et al., 1995)

Behavioral Inhibition/Behavioral Activation Scales (BIS/BAS; Carver & White, 1994)

Family Tree Questionnaire (FTQ; Mann et al., 1985)

Internal Restlessness Scale (IRS; Weyandt et al., 2003)

Morningness-Eveningness Questionnaire (MEQ; Horne & Ostberg, 1976)

Multidimensional Personality Questionnaire (MPQ; Tellegen, 1982; 1985)

Sensation Seeking Scales (SSS; Zuckerman et al., 1978)
Wender Utah Rating Scale (WURS; Ward et al., 1993)

Task 3: Engineer modifies software used to run the cognitive tasks to meet study specifications (Months 1–3). **DONE**

Task 4: Preparations for testing (Months 4–6). **DONE**

- a. Recruit research assistants. **DONE**
- b. Recruit nurse practitioner. **DONE**
- c. Train research assistants in all procedures for the study. **DONE**
- d. Order laboratory supplies and set up laboratory. **DONE.**

Task 5: Begin recruitment and screening (Months 7–8). **IN PROGRESS**

- a. Place advertisements **DONE (first wave)**
- b. Field responses to advertisements **IN PROGRESS**

Task 6: Conduct web-screening of 2,725 participants (Months 7–12) **IN PROGRESS**

- a. Review interviews to determine eligibility for health screening **IN PROGRESS**
- b. Schedule eligible participants for health screening **IN PROGRESS**

Task 7: Conduct health screening for 506 eligible participants (Months 8–12) **IN PROGRESS**

- a. Conduct 20-21 health screening sessions per week
- b. Review test and interview results to determine eligibility for physical exam
- c. Schedule eligible participants for physical examinations
- d. Begin to track menstrual cycle of all eligible women

Task 8: Conduct physical exams of 186 eligible participants (Months 8–12) **IN PROGRESS**

- a. Conduct 8–9 physical examinations per week
- b. Review results of exam to determine eligibility for medication-response testing
- c. Schedule eligible participants for medication-response testing (scheduling women on Days 2 – 9 of their menstrual cycle)

We anticipate that testing and then data quantification and analysis (Tasks 9 – 22) will begin shortly, as eligible participants are screened. Our new web survey will accommodate more rapid screening than we originally proposed and our new laboratory space (see *Problems*) will permit more efficient testing and data analysis. Thus, we expect to reestablish our original timetable in the second year of the project.

Problems

Progress in obtaining HSRRB approval was slowed by the need to relocate our laboratory to space in a new building on the campus of the National Naval Medical Center. This relocation was required as a result of the Walter Reed Army Medical Center – National Naval Medical Center Base Realignment and Closure effort; and involved USU-sponsored renovations to accommodate electrophysiological recording and other aspects of this and our other research protocols. The laboratory is now completely re-established, and the new space will accommodate this protocol more effectively than did the old space. Progress in the remainder of the project period will be facilitated accordingly.

Key Research Accomplishments

While waiting IRB and HSRRB approval, we undertook tasks that could be done without testing participants, and that would increase the relevance and informativeness of our results. We reviewed the literature to update and improve our protocol, modified software as needed to implement those improvements, and analyzed data collected previously in our laboratory to determine the task parameters that would reliably elicit ERP components relevant to behavioral control and risk for alcohol and drug abuse. These accomplishments are listed here:

- We programmed tasks, or modified and implemented software for existing tasks, for use in the study. These include tasks during which we will record ERPs as well as collect behavioral data (stop-signal, gambling, and novelty oddball tasks); and tasks for which we will collect behavioral data: Iowa Gambling Task (IGT), Balloon Analog Risk Task (BART), and the Reverse Identical Pairs Continuous Performance Test (R-IP-CPT).
- We developed a web-based survey that has replaced aspects of our health and demographic screening and personality testing. By allowing participants to answer questions on the web, using their own computer, the demands of participating in this protocol have been reduced. Moreover, the data are automatically scored and are available for downloading directly into our statistical analysis programs. Thus, the web survey permits us to screen and test participants at rapid pace, and to analyze data more efficiently and reliably.
- Analyzing data collected previously (in other research projects), we identified the task parameters that would reliably elicit in young adults (i.e., in the age range we planned to test in this study) ERP components relevant to the specific aims of the current research.
 - (1) In the stop-signal task, we identified sex differences in Stop P3, an ERP component that reflects processes related to response inhibition: On successfully inhibited trials, Stop P3 was larger in women than in men, reflecting sex differences in inhibitory control. This sex difference was evident when the stop signal was presented on 30% of trials; but not when it was presented on 50% of trials (Gabbay et al., 2008). Thus, to elicit sex differences, which are of particular interest due to sex differences in the prevalence of alcohol and drug abuse, the probability of the stop signal is 30% in the current study.
 - (2) In a gambling task, we elicited an ERP component that reflects the evaluation of negative outcomes, the feedback negativity (fERN). This brain marker of error processing was

larger following monetary losses than wins, and its amplitude was independent of the magnitude of loss (Gabbay & Duncan, unpublished data). On the basis of these analyses, we determined further that our gambling task could be shortened: the fERN was evident even when the number of trials was decreased from 480 to 256. Thus, we have been able to reduce the demands on our participants by significantly shortening the gambling task.

(3) In a novelty oddball task, which assesses involuntary shifts of attention to novel stimuli presented during an attention task, we found that the amplitude of P3a is inversely proportional to the probability of the eliciting novel stimuli (Duncan et al., 2007). Moreover, the P3a, a brain marker of the orienting response, was clearly evident when the probability of a novel stimulus is 12%; thus confirming our decision to present a novel stimulus on 12% of trials in the oddball task we are using in the present study.

- Using principal components analysis (PCA), we distinguished P3a from another ERP component elicited in the novelty oddball task. “Early P3a” (or eP3a) occurs slightly earlier, has a slightly more central scalp distribution than P3a, and appears to reflect a neural process that is distinct from the brain’s orienting response: eP3a appears to reflect the engagement of a deviance detector and may presage the emergence of P3a. We will use PCA in the current work to distinguish multiple components in the latency range of N2, one of which is thought to reflect error processing (McDonald et al., submitted). This will allow us to characterize more precisely cognitive differences between Responders and Nonresponders.
- We developed and honed procedures for recruiting, screening, and testing participants, and for data quantification and analysis, such that those procedures are now maximally efficient and reliable.

Reportable Outcomes

We obtained HSRRB approval on 7/03/08 and are now in the process of recruiting and screening but have not yet collected sufficient data to analyze. Thus, the papers listed here (#1 – #4) do not report data collected under the auspices of this research grant. Rather, the papers are listed because they were completed during the project period and bear a conceptual relation to the current research, and because the work reported in the papers facilitated the development of the current protocol. The two applications for funding (#5 and #6) are listed because they benefited from the protocol development done for the current research.

1. McDonald, C. G., Gabbay, F. H., Rietschel, J. C., & Duncan, C. C. On processing novel stimuli: Does P3a stand alone? *Psychophysiology*, submitted.
2. Gabbay, F. H., Duncan, C. C., & McDonald, C. G. ERP markers of drug preference: Novelty response and reorienting negativity. In preparation.
3. Gabbay, F.H., Duncan, C.C., de Ruiter, M.B., Lehmann, C.M., & Cattie, J.E. Sex and stopping: Brain potentials in the stop-signal task reveal inhibitory-control differences between men and women. *Alcoholism: Clinical and Experimental Research*, 32, 113A.
4. Duncan, C.C., Gabbay, F.H., Stern, A.R., Abraham, P.A., & de Ruiter, M.B. (2007). When novelty wears off: Effects of probability on P3a. *Psychophysiology*, 2007, 44, S93.

5. *Negative Affect and Brain Indices of Error-Processing: Linking Alcoholism and Posttraumatic Stress Disorder* (Under review, FY08 Peer-Reviewed Medical Research Program, Congressionally Directed Medical Research Program, Principal Investigator: Frances H. Gabbay, Ph.D.)
6. *Predicting Recovery from TBI: Brain Potential Markers of Risk and Resilience*, (Under review, National Institute on Neurological Disorders and Stroke, Principal Investigator: Connie C. Duncan, Ph.D.)

Conclusion

We obtained HSRRB approval on 7/03/08 and are now recruiting and screening participants for the protocol. While awaiting HSRRB approval, we improved the protocol by adding cognitive tasks and a battery of questionnaires (and obtaining HSRRB approval for those additions). We also honed our procedures for recruiting, screening, and testing participants, and for data quantification and analysis.

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Appendices

As noted above, we compiled a battery of questionnaires that assess characteristics related to behavioral control and that have been implicated in risk for alcohol and drug abuse. Data from this battery of questionnaires will allow us to characterize more fully differences between Responders and Nonresponders that may be related to risk for alcohol and drug abuse. The questionnaires are appended in the following order:

1. Barratt Impulsivity Scale-11
2. Behavioral Inhibition/Behavioral Activation Scales
3. Family Tree Questionnaire
4. Internal Restlessness Scale
5. Morningness-Eveningness Questionnaire
6. Multidimensional Personality Questionnaire
7. Sensation Seeking Scales (labelled *Interest and Preference Survey*)
8. Wender Utah Rating Scale

BIS-11

People differ in the ways they act and think in different situations. This is a survey that measures some of the ways in which you act and think. Read each statement and place a check in the appropriate box on the right side of the page. Do not spend too much time on any statement. Answer quickly and honestly.

		Rarely/Never	Occasionally	Often	Almost always
1.	I plan tasks carefully.				
2.	I do things without thinking.				
3.	I am happy-go-lucky.				
4.	I have "racing" thoughts.				
5.	I plan trips well ahead of time.				
6.	I am self-controlled.				
7.	I concentrate easily.				
8.	I save regularly.				
9.	I find it hard to sit still for long periods of time.				
10.	I am a careful thinker.				
11.	I plan for job security.				
12.	I say things without thinking.				
13.	I like to think about complex problems.				
14.	I change jobs.				
15.	I act "on impulse."				
16.	I get easily bored when solving thought problems.				
17.	I have regular medical/dental checkups.				
18.	I act on the spur of the moment.				
19.	I am a steady thinker.				
20.	I change where I live.				
21.	I buy things on impulse.				
22.	I finish what I start.				
23.	I walk and move fast.				
24.	I solve problems by trial-and-error.				
25.	I spend or charge more than I earn.				
26.	I talk fast.				
27.	I have outside thoughts when thinking.				
28.	I am more interested in the present than the future.				
29.	I am restless at lectures or talks.				
30.	I plan for the future.				

BIS/BAS

Each item of this questionnaire is a statement that a person may either agree with or disagree with. For each item, indicate how much you agree or disagree with what the item says. Please respond to all the items; do not leave any blank. Choose only one response to each statement. Please be as accurate and honest as you can be. Respond to each item as if it were the only item. That is, don't worry about being "consistent" in your responses. Choose from the following four response options:

- 1 = very true for me
- 2 = somewhat true for me
- 3 = somewhat false for me
- 4 = very false for me

- ___ 1. A person's family is the most important thing in life.
- ___ 2. Even if something bad is about to happen to me, I rarely experience fear or nervousness.
- ___ 3. I go out of my way to get things I want.
- ___ 4. When I'm doing well at something I love to keep at it.
- ___ 5. I'm always willing to try something new if I think it will be fun.
- ___ 6. How I dress is important to me.
- ___ 7. When I get something I want, I feel excited and energized.
- ___ 8. Criticism or scolding hurts me quite a bit.
- ___ 9. When I want something I usually go all-out to get it.
- ___ 10. I will often do things for no other reason than that they might be fun.

- ___ 11. It's hard for me to find the time to do things such as get a haircut.
- ___ 12. If I see a chance to get something I want I move on it right away.
- ___ 13. I feel pretty worried or upset when I think or know somebody is angry at me.
- ___ 14. When I see an opportunity for something I like I get excited right away.
- ___ 15. I often act on the spur of the moment.
- ___ 16. If I think something unpleasant is going to happen I usually get pretty "worked up."
- ___ 17. I often wonder why people act the way they do.
- ___ 18. When good things happen to me, it affects me strongly.
- ___ 19. I feel worried when I think I have done poorly at something important.
- ___ 20. I crave excitement and new sensations.

- ___ 21. When I go after something I use a "no holds barred" approach.
- ___ 22. I have very few fears compared to my friends.
- ___ 23. It would excite me to win a contest.
- ___ 24. I worry about making mistakes.

FAMILY TREE QUESTIONNAIRE

INSTRUCTIONS: For each relative listed below, we want you to categorize their drinking behavior into one of five categories. Only include blood relatives; that is, relatives by birth. Not included would be those adopted, half-siblings, and step-relatives.

CODE EACH RELATIVE USING ONE OF THE FOLLOWING 5 CODES:

1. **NEVER DRANK:** A person who (has) **never** consumed alcohol beverages (i.e., a lifelong abstainer; teetotaler).
2. **SOCIAL DRINKER:** A person who drinks moderately and is not known to have a drinking problem.
3. **POSSIBLE PROBLEM DRINKER:** A person who you believe or were told might have (had) a drinking problem, but whom you are not certain actually had a drinking problem.
4. **DEFINITE PROBLEM DRINKER:** Only include here persons who either are known to have received treatment for a drinking problem (including being a regular member of Alcoholics Anonymous), or who are known to have experienced several negative consequences of their drinking.
5. **NO RELATIVE:** Only applicable for brothers and sisters.
6. **DON'T KNOW/DON'T REMEMBER**

Maternal Grandmother
(Mother's mother)

(1) _____

Maternal Grandfather
(Mother's father)

(2) _____

Paternal Grandmother
(Father's mother)

(3) _____

Paternal Grandfather
(Father's father)

(4) _____

|_____|

|
Mother

|_____|

|
Father

(5) _____

(6) _____

|_____|

|
Your
Brothers

|
Y O U

|
Your
Sisters

(7)____(8)____(9)____(10)____

(11)____(12)____(13)____(14)____

IRS

Following is a list of statements that people have used to describe themselves. Please indicate (by circling a number) the extent to which, in general, each one applies to you. Be sure to answer all of the items.

	None of the time		Some of the time		Most of the time		All of the time
1. I am organized.	1	2	3	4	5	6	7
2. I am told that I interrupt people.	1	2	3	4	5	6	7
3. Thoughts race through my mind.	1	2	3	4	5	6	7
4. Mental restlessness prevents me from sleeping.	1	2	3	4	5	6	7
5. I am always thinking; I have difficulty putting my thoughts to rest.	1	2	3	4	5	6	7
6. While listening to others, my attention drifts to unrelated thoughts.	1	2	3	4	5	6	7
7. I lose my train of thought conversing with others.	1	2	3	4	5	6	7
8. I have urges to blurt out thoughts.	1	2	3	4	5	6	7
9. I have difficulty maintaining focus.	1	2	3	4	5	6	7
10. I feel compelled to interrupt others.	1	2	3	4	5	6	7
11. I feel mentally calm.	1	2	3	4	5	6	7
12. I have difficulty relaxing because of recurring thoughts.	1	2	3	4	5	6	7
13. I am distracted by sounds.	1	2	3	4	5	6	7
14. I have difficulty organizing my thoughts.	1	2	3	4	5	6	7
15. I replay situations in my mind.	1	2	3	4	5	6	7
16. I worry about becoming bored.	1	2	3	4	5	6	7
17. I focus on tasks.	1	2	3	4	5	6	7
18. I have difficulty planning.	1	2	3	4	5	6	7
19. Unrelated thoughts seem to pop into my head.	1	2	3	4	5	6	7
20. I am distracted by visual stimuli.	1	2	3	4	5	6	7
21. My mind wanders.	1	2	3	4	5	6	7
22. Many possible outcomes to future scenarios run through my mind.	1	2	3	4	5	6	7
23. I seek mental stimuli.	1	2	3	4	5	6	7
24. I feel internally restless.	1	2	3	4	5	6	7

Morningness-Eveningness Questionnaire

The following questions are about your daily sleep-wake habits and the times of day you prefer to do certain activities. For each question, select the answer choice that best describes you. Base your judgments on how you have felt in recent weeks.

1) *Approximately* what time would you get up if you were entirely free to plan your day?

- ☐ 5:00-6:30 a.m.
- ☐ 6:30-7:45 a.m.
- ☐ 7:45-9:45 a.m.
- ☐ 9:45-11:00 a.m.
- ☐ 11:00 a.m.-12:00 noon
- ☐ 12:00 noon-5:00 a.m.

2) *Approximately* what time would you go to bed if you were entirely free to plan your evening?

- ☐ 8:00-9:00 p.m.
- ☐ 9:00-10:15 p.m.
- ☐ 10:15 p.m.-12:30 a.m.
- ☐ 12:30-1:45 a.m.
- ☐ 1:45-3:00 a.m.
- ☐ 3:00 a.m.-8:00 p.m.

3) If you usually have to get up at a specific time in the morning, how much do you depend on an alarm clock?

- ☐ Not at all
- ☐ Slightly
- ☐ Somewhat
- ☐ Very much

4) How easy do you find it to get up in the morning (when you are not awakened unexpectedly)?

- ☐ Very difficult
- ☐ Somewhat difficult
- ☐ Fairly easy
- ☐ Very easy

5) How alert do you feel during the first half hour after you wake up in the morning?

- ☐ Not at all alert
- ☐ Slightly alert
- ☐ Fairly alert
- ☐ Very alert

6) How hungry do you feel during the first half hour after you wake up?

- ☐ Not at all hungry
- ☐ Slightly hungry
- ☐ Fairly hungry
- ☐ Very hungry

7) During the first half hour after you wake up in the morning, how do you feel?

- ☐ Very tired
- ☐ Fairly tired
- ☐ Fairly refreshed
- ☐ Very refreshed

8) If you had no commitments the next day, what time would you go to bed compared to your usual bedtime?

- ☐ Seldom or never later
- ☐ Less than 1 hour later
- ☐ 1-2 hours later
- ☐ More than 2 hours later

9) You have decided to do physical exercise. A friend suggests that you do this for one hour twice a week, and the best time for him is between 7:00-8:00 a.m. Bearing in mind nothing but your own internal "clock," how do you think you would perform?

- ☐ Would be in good form
- ☐ Would be in reasonable form
- ☐ Would find it difficult
- ☐ Would find it very difficult

10) At *approximately* what time in the evening do you feel tired, and, as a result, in need of sleep?

- ☐ 8:00-9:00 p.m.
- ☐ 9:00-10:15 p.m.
- ☐ 10:15 p.m.-12:45 a.m.
- ☐ 12:45-2:00 a.m.
- ☐ 2:00-3:00 a.m.

11) You want to be at your peak performance for a test that you know is going to be mentally exhausting and will last two hours. You are entirely free to plan your day. Considering only your internal "clock," which one of the four testing times would you choose?

- ☐ 8:00-10:00 a.m.
- ☐ 11:00 a.m.-1:00 p.m.
- ☐ 3:00-5:00 p.m.
- ☐ 7:00-9:00 p.m.

12) If you got into bed at 11:00 p.m., how tired would you be?

- ☐ Not at all tired
- ☐ A little tired
- ☐ Fairly tired
- ☐ Very tired

13) For some reason you have gone to bed several hours later than usual, but there is no need to get up at any particular time the next morning. Which one of the following are you most likely to do?

- ☐ Will wake up at usual time, but will not fall back asleep
- ☐ Will wake up at usual time and will doze thereafter
- ☐ Will wake up at usual time, but will fall asleep again
- ☐ Will not wake up until later than usual

14) One night you have to remain awake between 4:00-6:00 a.m. in order to carry out a night watch. You have no time commitments the next day. Which one of the alternatives would suit you best?

- ☐ Would not go to bed until the watch was over
- ☐ Would take a nap before and sleep after
- ☐ Would take a good sleep before and nap after
- ☐ Would sleep only before the watch

15) You have to do two hours of hard physical work. You are entirely free to plan your day. Considering only your internal "clock," which one of the following times would you choose?

- ☐ 8:00-10:00 a.m.
- ☐ 11:00 a.m.-1:00 p.m.
- ☐ 3:00-5:00 p.m.
- ☐ 7:00-9:00 p.m.

16) You have decided to do physical exercise. A friend suggests that you do this for one hour twice a week. The best time for her is between 10:00-11:00 p.m. Bearing in mind only your own internal "clock," how well do think you would perform?

- ☐ Would be in good form
- ☐ Would be in reasonable form
- ☐ Would find it difficult
- ☐ Would find it very difficult

17) Suppose you can choose your own work hours. Assume that you work a five-hour day (including breaks), your job is interesting and you are paid based on your performance. At *approximately* what time would you choose to begin?

- ☐ 5 hours starting between 4:00 a.m. and 8:00 a.m.
- ☐ 5 hours starting between 8:00 a.m. and 9:00 a.m.
- ☐ 5 hours starting between 9:00 a.m. and 2:00 p.m.
- ☐ 5 hours starting between 2:00 p.m. and 5:00 p.m.
- ☐ 5 hours starting between 5:00 p.m. and 4:00 a.m.

18) At *approximately* what time of day do you usually feel your best?

- ☐ 5:00 a.m.-8:00 a.m.
- ☐ 8:00 a.m.-10:00 a.m.
- ☐ 10:00 a.m.-5:00 p.m.
- ☐ 5:00-10:00 p.m.
- ☐ 10:00 p.m.-5:00 a.m.

19) One hears about "morning types" and "evening types." Which one of these types do you consider yourself to be?

- ☐ Definitely a morning type
- ☐ Rather more a morning type than an evening type
- ☐ Rather more an evening type than a morning type
- ☐ Definitely an evening type

MPQ™

DIRECTIONS: In this questionnaire you will find a series of statements a person might use to describe his or her attitudes, opinions, interests, and other characteristics. Each statement is followed by two choices, labeled "A" and "B." Read the statement and decide which choice best describes you. Circle the letter of the answer you have chosen. Please answer *every statement* even if you are not completely sure which answer is right for you. Read each statement carefully, but don't spend too much time deciding on the answer.

1. When I work with others, I like to take charge.
A. True
B. False
2. I keep close track of where my money goes.
A. True
B. False
3. I often find myself worrying about something.
A. True
B. False
4. I usually like to spend my free time with friends rather than alone.
A. True
B. False
5. Sometimes I feel and experience things as I did when I was a child.
A. True
B. False
6. My table manners are not always perfect.
A. True
B. False
7. If people criticize me, I usually point out their own weaknesses.
A. True
B. False
8. I am just naturally cheerful.
A. True
B. False
9. The best way to achieve a peaceful world is to improve people's morals.
A. True
B. False
10. I often keep working on a problem even if I am very tired.
A. True
B. False

11. Some people go out of their way to keep me from getting ahead.
A. True
B. False
12. I often stop one thing before completing it, and start another.
A. True
B. False
13. I can be greatly moved by eloquent or poetic language.
A. True
B. False
14. My feelings are hurt rather easily.
A. True
B. False
15. I don't like having to tell people what to do.
A. True
B. False
16. I could be happy living by myself in a cabin in the woods or mountains.
A. True
B. False
17. My future looks very bright to me.
A. True
B. False
18. I am always disgusted with the law when a criminal goes free because of a clever lawyer.
A. True
B. False
19. Of these two situations I would dislike more:
A. Being in a bank when suddenly three masked people with guns come in and make everyone raise their hands
B. Sitting through a two-hour concert of boring music
20. When someone hurts me, I try to get even.
A. True
B. False
21. While watching a movie, a TV show, or a play, I may become so involved that I forget about myself and my surroundings, and experience the story as if it were real and as if I were taking part in it.
A. True
B. False
22. I see no point in sticking with a problem if success is unlikely.
A. True
B. False

23. I enjoy being in the spotlight.

- A. True
- B. False

24. When faced with a decision, I usually take time to consider and weigh all possibilities.

- A. True
- B. False

25. I am easily "rattled" at critical moments.

- A. True
- B. False

26. I have always been extremely courageous in facing difficult situations.

- A. True
- B. False

27. Many people try to push me around.

- A. True
- B. False

28. As young people grow up they ought to try to carry out some of their rebellious ideas instead of just settling down.

- A. True
- B. False

29. When I am unhappy about something,

- A. I tend to seek the company of a friend.
- B. I prefer to be alone.

30. If I stare at a picture and then look away from it, I can sometimes "see" an image of the picture, almost as if I were still looking at it.

- A. True
- B. False

31. It might be fun and exciting to experience an earthquake.

- A. True
- B. False

32. It is easy for me to become enthusiastic about things I am doing.

- A. True
- B. False

33. I perform for an audience whenever I can.

- A. True
- B. False

34. I play hard and I work hard.

- A. True
- B. False

35. I enjoy violent movies.

- A. True
- B. False

36. Often I get irritated at little annoyances.

- A. True
- B. False

37. Sometimes I feel as if my mind could envelop the whole world.

- A. True
- B. False

38. I often act without thinking.

- A. True
- B. False

39. Most people make friends because they expect friends to be useful.

- A. True
- B. False

40. I would be very embarrassed to tell people that I had spent my vacation at a nudist camp.

- A. True
- B. False

41. I prefer not to "open up" too much, not even to friends.

- A. True
- B. False

42. I often feel happy and satisfied for no particular reason.

- A. True
- B. False

43. On most social occasions I like to have someone else take the lead.

- A. True
- B. False

44. I suffer from nervousness.

- A. True
- B. False

45. I like to watch cloud shapes change in the sky.

- A. True
- B. False

46. At times I have been envious of someone.

- A. True
- B. False

47. I like to stop and think things over before I do them.

- A. True
- B. False

48. I am very religious (more than most people are).

- A. True
- B. False

49. Of the following two situations, I would dislike more:

- A. Standing in line for something
- B. Getting an electric shock as part of a medical experiment

50. I enjoy putting in long hours.

- A. True
- B. False

51. I live a very interesting life.

- A. True
- B. False

52. People often try to take advantage of me.

- A. True
- B. False

53. If I wish, I can imagine (or daydream) some things so vividly that it's like watching a good movie or hearing a good story.

- A. True
- B. False

54. I often monopolize conversations.

- A. True
- B. False

55. I am a warm person rather than cool and distant.

- A. True
- B. False

56. Higher standards of conduct are what this country needs most.

- A. True
- B. False

57. I often prefer to "play things by ear" rather than to plan ahead.

- A. True
- B. False

58. Of these two situations, I would dislike more:

- A. Balancing along the top of a picket fence
- B. Walking up four flights of stairs

59. I see nothing wrong with stepping on people's toes a little if it is to my advantage.

- A. True
- B. False

60. I think I really know what some people mean when they talk about mystical experiences.
A. True
B. False
61. Every day I do some things that are fun.
A. True
B. False
62. My opinions are always completely reasonable.
A. True
B. False
63. I am (or could be) a very effective sales person.
A. True
B. False
64. When I want to, I can usually put fears and worries out of my mind.
A. True
B. False
65. Of these two opinions, I agree more with:
A. Most parents today let their children get by with too much.
B. Most parents today do a pretty good job of raising their children.
66. People often just use me instead of treating me as a person.
A. True
B. False
67. I am usually happier when I am alone.
A. True
B. False
68. I sometimes "step outside" my usual self and experience a completely different state of being.
A. True
B. False
69. I might enjoy riding in an open elevator to the top of a tall building under construction.
A. True
B. False
70. I don't like to start a project until I know exactly how to do it.
A. True
B. False
71. People say that I drive myself hard.
A. True
B. False
72. Often when I get angry I am ready to hit someone.
A. True
B. False

73. Textures – such as wool, sand, wood – sometimes remind me of colors or music.

- A. True
- B. False

74. I often find it difficult to sleep at night.

- A. True
- B. False

75. I like working with people more than working with things.

- A. True
- B. False

76. Of these two situations I would dislike more:

- A. Walking a mile when it's 25 degrees below zero
- B. Being near when a volcano erupts

77. I am almost always treated fairly.

- A. True
- B. False

78. I would prefer to see:

- A. Stricter observance of major religious holidays
- B. Greater acceptance of non-traditional families, like single-parent families

79. I am very level-headed and usually have my feet on the ground.

- A. True
- B. False

80. I have at times eaten too much.

- A. True
- B. False

81. Sometimes I experience things as if they were doubly real.

- A. True
- B. False

82. Seeing the bright side of things is very easy to me.

- A. True
- B. False

83. I am quite effective at talking people into things.

- A. True
- B. False

84. My mood often goes up and down.

- A. True
- B. False

85. I would not enjoy fighting a forest fire.

- A. True
- B. False

86. I admit that I sometimes enjoy hurting someone physically.

- A. True
- B. False

87. I often keep working on a problem long after others would have given up.

- A. True
- B. False

88. I have few or no close friends.

- A. True
- B. False

89. I am opposed to more censorship of books and movies because it would go against free speech.

- A. True
- B. False

90. When I listen to music I can get so caught up in it that I don't notice anything else.

- A. True
- B. False

91. I have had a lot of bad luck.

- A. True
- B. False

92. I am more likely to be fast and careless than to be slow and plodding.

- A. True
- B. False

93. I am very good at influencing people.

- A. True
- B. False

94. Of these two situations, I would dislike more:

- A. Having to walk around all day on a blistered foot
- B. Sleeping out on a camping trip in an area where there are rattlesnakes

95. I sometimes feel "just miserable" for no good reason.

- A. True
- B. False

96. I enjoy nearly everything I do.

- A. True
- B. False

97. I consider it very important to have a good name in my community.

- A. True
- B. False

98. I work just hard enough to get by without overdoing it.

- A. True
- B. False

99. If I wish, I can imagine that my body is so heavy that I could not move it.

- A. True
- B. False

100. I can't help but enjoy it when someone I dislike makes a fool of herself/himself.

- A. True
- B. False

101. I am more of a "loner" than most people.

- A. True
- B. False

102. I have always been completely fair to others.

- A. True
- B. False

103. I almost never do anything reckless.

- A. True
- B. False

104. I have personal enemies who would like to harm me.

- A. True
- B. False

105. I am not interested in being a leader.

- A. True
- B. False

106. Often I have feelings of unworthiness.

- A. True
- B. False

107. Of these two situations I would dislike more:

- A. Having a pilot announce that the plane has engine trouble and it may be necessary to make an emergency landing
- B. Working in the fields digging potatoes

108. I can often somehow sense the presence of another person before I actually see or hear her/him.

- A. True
- B. False

109. I very much dislike it when someone breaks accepted rules of good conduct.

- A. True
- B. False

110. Basically I am a happy person.

- A. True
- B. False

111. I like to try difficult things.

- A. True
- B. False

112. When I need to buy something, I usually get it without thinking what more I may soon need from the same store.

- A. True
- B. False

113. I would rather turn the other cheek than get even when someone treats me badly.

- A. True
- B. False

114. It would be fun to explore an old abandoned house at night.

- A. True
- B. False

115. People find me forceful.

- A. True
- B. False

116. The crackle and flames of a wood fire stimulate my imagination.

- A. True
- B. False

117. Occasionally I have strong emotions--anxiety, anger--without really knowing why.

- A. True
- B. False

118. People who think mostly of their own happiness are very selfish.

- A. True
- B. False

119. I would be more successful if people did not make things difficult for me.

- A. True
- B. False

120. I usually find ways to liven up my day.

- A. True
- B. False

121. I have at times been angry with someone.

- A. True
- B. False

122. I like hard work.

- A. True
- B. False

123. Sometimes I am so immersed in nature or in art that I feel as if my whole state of consciousness has somehow been temporarily changed.

- A. True
- B. False

124. I tend to value and take a rational, "sensible" approach to things.

- A. True
- B. False

125. Of these two situations, I would dislike more:

- A. Being out on a sailboat during a great storm at sea
- B. Having to stay home every night for two weeks with a sick relative

126. Often I go a whole morning without wanting to speak to anyone.

- A. True
- B. False

127. I am easily startled by things that happen unexpectedly.

- A. True
- B. False

128. If I try, I can usually "wrap people around my finger."

- A. True
- B. False

129. I am ready to fight when someone tries to take advantage of me.

- A. True
- B. False

130. The church has outgrown its usefulness and should be completely changed or done away with.

- A. True
- B. False

131. Different colors have distinctive and special meanings for me.

- A. True
- B. False

132. People often say mean things about me.

- A. True
- B. False

133. I have several pastimes or hobbies that are great fun.

- A. True
- B. False

134. I would enjoy trying to cross the ocean in a small but seaworthy sailboat.

- A. True
- B. False

135. I do not like to be the center of attention on social occasions.

- A. True
- B. False

136. I often act on the spur of the moment.

- A. True
- B. False

137. For me, one of the best experiences is the warm feeling of being in a group of good friends.

- A. True
- B. False

138. In my work I have learned not to demand perfection of myself.

- A. True
- B. False

139. I am often nervous for no reason.

- A. True
- B. False

140. My parents' ideas of right and wrong have always proved best.

- A. True
- B. False

141. I can so completely wander off into my own thoughts while doing a routine task that I actually forget that I am doing the task, and then find a few minutes later that I have finished it.

- A. True
- B. False

142. I always tell the entire truth.

- A. True
- B. False

143. Sometimes I seem to enjoy hurting someone by saying mean things.

- A. True
- B. False

144. I seldom feel really happy.

- A. True
- B. False

145. Of these two situations, I would dislike more:

- A. Riding a long stretch of rapids in a canoe
- B. Waiting for someone who's late

146. I feel that life has handed me a raw deal.

- A. True
- B. False

147. I usually make up my mind through careful reasoning.

- A. True
- B. False

148. I usually do not like to be a "follower."

- A. True
- B. False

149. I can sometimes recall certain past experiences in my life so clearly and vividly that it is like living them again or almost so.

- A. True
- B. False

150. Even when I have done something very well, I usually demand that I do better next time.

- A. True
- B. False

151. People should obey moral laws more strictly than they do.

- A. True
- B. False

152. I prefer to work alone.

- A. True
- B. False

153. Most mornings the day ahead looks bright to me.

- A. True
- B. False

154. It might be fun learning to walk a tightrope.

- A. True
- B. False

155. I enjoy a good brawl.

- A. True
- B. False

156. Things that might seem meaningless to others often make sense to me.

- A. True
- B. False

157. When I am with someone, I make most of the decisions.

- A. True
- B. False

158. I sometimes get very upset and tense as I think about the day's events.

- A. True
- B. False

159. I am often not as cautious as I should be.

- A. True
- B. False

160. I am disgusted by dirty language.

- A. True
- B. False

161. I know that people have purposely spread false rumors about me, on purpose.

- A. True
- B. False

162. Sometimes I'm a bit lazy.

- A. True
- B. False

163. Some people say that I put my work ahead of too many other things.

- A. True
- B. False

164. I would rather live:

- A. In a friendly suburb
- B. Alone in the woods

165. If I acted in a play, I think I would really feel the emotions of the character and "become" that person for the time being, forgetting both myself and the audience.

- A. True
- B. False

166. Of these two situations I would dislike more:

- A. Being at the circus when two lions suddenly get loose down in the ring
- B. Bringing my whole family to the circus and then not being able to get in because a clerk sold me tickets for the wrong night

167. Most days I have moments of real fun or joy.

- A. True
- B. False

168. I get a kick out of really frightening someone.

- A. True
- B. False

169. Of these two opinions, I agree more with

- A. A 6- or 7-year old who lies or steals should be punished severely
- B. Lying and stealing by a 6- or 7-year old isn't very serious.

170. On social occasions, I usually allow others to dominate the conversation.

- A. True
- B. False

171. I am often troubled by guilt feelings.

- A. True
- B. False

172. I plan and organize my work in detail.

- A. True
- B. False

173. My thoughts often occur as visual images rather than as words.

- A. True
- B. False

174. Most people stay friendly only as long as it is to their advantage.

- A. True
- B. False

175. Of these two situations, I would dislike more:

- A. Having to drive alone for a day and a half without stopping for sleep because I stayed on my vacation too long
- B. Jumping from a third-story window into a fireman's net

176. I often feel sort of lucky for no special reason.

- A. True
- B. False

177. When I have a problem, I prefer to handle it alone.

- A. True
- B. False

178. I am not a terribly ambitious person.

- A. True
- B. False

179. I am better at talking than listening.

- A. True
- B. False

180. I would describe myself as a tense person.

- A. True
- B. False

181. No decent person could ever think of hurting a close friend or relative.

- A. True
- B. False

182. I am often delighted by small things (like the five-pointed star shape that appears when you cut an apple across the core or the colors in soap bubbles).

- A. True
- B. False

183. Never in my whole life have I taken advantage of anyone.

- A. True
- B. False

184. Sometimes I hit people who have done something to deserve it.

- A. True
- B. False

185. I often start projects with little idea of what the end result will be.

- A. True
- B. False

186. I would not like to try skydiving or bungee jumping.

- A. True
- B. False

187. People rarely try to take advantage of me.

- A. True
- B. False

188. I often liven up a dull party.

- A. True
- B. False

189. When listening to organ music or other powerful music, I sometimes feel as if I am being lifted into the air.

- A. True
- B. False

190. It is easy for me to feel affection for a person.

- A. True
- B. False

191. Every day interesting and exciting things happen to me.

- A. True
- B. False

192. Of these two opinions I agree more with:

- A. Parents should ignore it when small children swear or say dirty words.
- B. Parents should punish small children when they swear or say dirty words.

193. Minor setbacks sometimes irritate me too much.

- A. True
- B. False

194. I push myself to my limits.

- A. True
- B. False

195. People say that I am well organized (that I do things in a systematic manner).

- A. True
- B. False

196. Of these two situations, I would dislike more:

- A. Finding out my car has been stolen when I don't have theft insurance
- B. Riding a runaway horse

197. Sometimes I can change noise into music by the way I listen to it.

- A. True
- B. False

198. I would not hurt others to get what I want.

- A. True
- B. False

199. I do not like to organize other people's activities.

- A. True
- B. False

200. I have sometimes felt slightly hesitant about helping someone who asked me to.

- A. True
- B. False

201. Whenever I decide anything, I make it a point to refer to the basic rules of right and wrong.

- A. True
- B. False

202. I am rather aloof and maintain distance between myself and others.

- A. True
- B. False

203. If I have a humiliating experience I get over it very quickly.

- A. True
- B. False

204. I find it really hard to give up on a project when it proves too difficult.

- A. True
- B. False

205. In my spare time, I usually find something interesting to do.

- A. True
- B. False

206. Of these two situations, I would dislike more:

- A. Being chosen as the "target" for a knife-throwing act
- B. Being sick to my stomach for 24 hours

207. Several people would like to take away what success I have.

- A. True
- B. False

208. Some of my most vivid memories are called up by scents and smells.

- A. True
- B. False

209. I am a cautious person.

- A. True
- B. False

210. It is a pretty callous (unfeeling) person who does not feel love and gratitude toward her/his parents.

- A. True
- B. False

211. I am usually light-hearted.

- A. True
- B. False

212. I like to watch a good, vicious fight.

- A. True
- B. False

213. I am quite good at convincing others to see things my way.

- A. True
- B. False

214. I often lose sleep over my worries.

- A. True
- B. False

215. Some music reminds me of pictures or changing color patterns.

- A. True
- B. False

216. I am happiest when I am with people most of the time.

- A. True
- B. False

217. I like (or would like) to dive off a high board.

- A. True
- B. False

218. My "friends" have often betrayed me.

- A. True
- B. False

219. I generally do not like to have detailed plans.

- A. True
- B. False

220. I see no point in spending time on a task that is probably too difficult.

- A. True
- B. False

221. I have never felt that I was better than someone else.

- A. True
- B. False

222. Of these two opinions, I agree more with

- A. No child should be permitted to hit her/his mother
- B. A mother should not be harsh with a small child who hits her

223. I often know what someone is going to say before he or she says it.

- A. True
- B. False

224. I would enjoy being a powerful business executive or politician.

- A. True
- B. False

225. I worry about terrible things that might happen.

- A. True
- B. False

226. I sometimes tease people rather cruelly.

- A. True
- B. False

227. I feel pretty optimistic about my future.

- A. True
- B. False

228. Of these two situations, I would dislike more:

- A. Tying up a truck full of newspapers for a paper sale
- B. Seeing a tornado cloud moving toward me when I'm driving in the country

229. I tend to keep my problems to myself.

- A. True
- B. False

230. I have often been lied to.

- A. True
- B. False

231. I often have "physical memories;" for example, after I've been swimming, I may still feel as if I'm in the water.

- A. True
- B. False

232. Striving for excellence means more to me than almost anything else.

- A. True
- B. False

233. I don't like to see religious authority overturned by so-called progress and logical reasoning.

- A. True
- B. False

234. Whenever I go out to have fun, I like to have a pretty good idea of what I'm going to do.

- A. True
- B. False

235. For me, life is a great adventure.

- A. True
- B. False

236. I don't enjoy trying to convince people of something.

- A. True
- B. False

237. Of these two situations, I would dislike more:

- A. Being in a flood
- B. Carrying a ton of coal from the backyard into the basement

238. The sound of a voice can be so fascinating to me that I can just go on listening to it.

- A. True
- B. False

239. When people insult me, I try to get even.

- A. True
- B. False

240. Strict discipline in the home would prevent much of the crime in our society.

- A. True
- B. False

241. I often prefer not to have people around me.

- A. True
- B. False

242. I have occasionally felt discouraged about something.

- A. True
- B. False

243. People consider me a rather freewheeling and spontaneous person.

- A. True
- B. False

244. I am a pretty "strong" personality.

- A. True
- B. False

245. I like the kind of work that requires my close attention.

- A. True
- B. False

246. I know that certain people would enjoy it if I got hurt.

- A. True
- B. False

247. I would enjoy learning to handle poisonous snakes.

- A. True
- B. False

248. There are days when I'm "on edge" all of the time.

- A. True
- B. False

249. At times I somehow feel the presence of someone who is not physically there.

- A. True
- B. False

250. Without being conceited, I feel pretty good about myself.

- A. True
- B. False

251. Before I get into a new situation, I like to find out what to expect from it.

- A. True
- B. False

252. I am not at all sorry to see many of the traditional values change.

- A. True
- B. False

253. Without close relationships with others, my life would not be nearly as enjoyable.

- A. True
- B. False

254. I could not feel happy about anybody's bad luck.

- A. True
- B. False

255. When it is time to make decisions, others usually turn to me.

- A. True
- B. False

256. Of these two situations, I would dislike more:

- A. Realizing the ice is unsafe when I'm standing in the middle of a frozen lake
- B. Finding that someone has slashed all four of my car tires

257. Sometimes thoughts and images come to me without any effort on my part.

- A. True
- B. False

258. I am too sensitive for my own good.

- A. True
- B. False

259. I don't like to do more than is really necessary in my work.

- A. True
- B. False

260. When people are friendly, they usually want something from me.

- A. True
- B. False

261. I find it very easy to enjoy life.

- A. True
- B. False

262. High moral standards are the most important thing parents can teach their children.

- A. True
- B. False

263. Never in my whole life have I wished for something that I was not entitled to.

- A. True
- B. False

264. On social occasions I don't particularly care to "run the show."

- A. True
- B. False

265. I find that different smells have different colors.

- A. True
- B. False

266. I often like to do the first thing that comes to my mind.

- A. True
- B. False

267. Of these two situations, I would dislike more:

- A. Being seasick every day for a week while on an ocean voyage
- B. Having to stand on the window ledge of the 25th floor of a hotel because there's a fire in my room

268. I could pull up my roots, leave my home, my parents, and my friends without regretting it.

- A. True
- B. False

269. My mood sometimes changes from happy to sad, or sad to happy, without good reason.

- A. True
- B. False

270. Sometimes I just like to hit someone.

- A. True
- B. False

271. I set very high standards for myself in my work.

- A. True
- B. False

272. I always seem to have something exciting to look forward to.

- A. True
- B. False

273. I can be deeply moved by a sunset.

- A. True
- B. False

274. Some people are against me for no good reason.

- A. True
- B. False

275. I admire most things about my parents.

- A. True
- B. False

276. Of these two situations, I would dislike more:

- A. Burning my arm badly by leaning against a hot water pipe
- B. Swimming where sharks have been reported

Interest and Preference Survey

Each of the items below contains two choices, A and B. Please indicate which of the choices most describes your likes, or the way you feel. In some cases, you may find items in which both choices describe your likes or feelings. Please choose the one that *better* describes your likes or feelings. In some cases, you may find items in which you do not like either choice. In these cases, mark the choice you dislike least. Do not leave any items blank.

It is important you respond to all items with only one choice, A or B. We are interested only in your likes or feelings, not in how others feel about these things or how one is supposed to feel. There are no right or wrong answers. Be frank and give your honest appraisal of yourself.

1. A. I like "wild" uninhibited parties.
B. I prefer quiet parties with good conversation.
2. A. There are some movies I enjoy seeing a second or even a third time.
B. I can't stand watching a movie that I've seen before.
3. A. I often wish I could be a mountain climber.
B. I can't understand people who risk their necks climbing mountains.
4. A. I dislike all body odors.
B. I like some of the earthy body smells.
5. A. I get bored seeing the same old faces.
B. I like the comfortable familiarity of everyday friends.
6. A. I like to explore a strange city or section of town by myself, even if it means getting lost.
B. I prefer a guide when I am in a place I don't know well.
7. A. I dislike people who do or say things just to shock or upset others.
B. When you can predict almost everything a person will do and say, he or she must be a bore.
8. A. I usually don't enjoy a movie or play in which I can predict what will happen in advance.
B. I don't mind watching a movie or play in which I can predict what will happen in advance.
9. A. I have tried marijuana or would like to.
B. I would never smoke marijuana.
10. A. I would not like to try any drug which might produce strange and dangerous effects on me.
B. I would like to try some of the new drugs that produce hallucinations.
11. A. A sensible person avoids activities that are dangerous.
B. I sometimes like to do things that are a little frightening.
12. A. I dislike "swingers" (people who are uninhibited and free about sex.)
B. I enjoy the company of real "swingers."

13. A. I find that stimulants make me uncomfortable.
B. I often like to get high (drinking liquor or smoking marijuana).
14. A. I like to try new foods that I have never tasted before.
B. I order the dishes with which I am familiar, so as to avoid disappointment and unpleasantness.
15. A. I enjoy looking at home movies or travel slides.
B. Looking at someone's home movies or travel slides bores me tremendously.
16. A. I would like to take up the sport of water skiing.
B. I would not like to take up water skiing.
17. A. I would like to try surf board riding.
B. I would not like to try surf board riding.
18. A. I would like to take off on a trip with no preplanned or definite routes, or timetable.
B. When I go on a trip I like to plan my route and timetable fairly carefully.
19. A. I prefer the "down to earth" kinds of people as friends.
B. I would like to make friends in some of the "far out" groups like artists or "punks."
20. A. I would not like to learn to fly an airplane.
B. I would like to learn to fly an airplane.
21. A. I prefer the surface of the water to the depths.
B. I would like to go scuba diving.
22. A. I would like to meet some persons who are homosexual (men or women).
B. I stay away from anyone I suspect of being "gay" or "lesbian."
23. A. I would like to try parachute jumping.
B. I would never want to try jumping out of a plane with or without a parachute.
24. A. I prefer friends who are excitingly unpredictable.
B. I prefer friends who are reliable and predictable.
25. A. I am not interested in experience for its own sake.
B. I like to have new and exciting experiences and sensations even if they are a little frightening, unconventional, or illegal.
26. A. The essence of goon art is in its clarity, symmetry of form, and harmony of colors.
B. I often find beauty in the "clashing" colors and irregular forms of modern paintings.
27. A. I enjoy spending time in the familiar surroundings of home.
B. I get very restless if I have to stay around home for any length of time.
28. A. I like to dive off the high board.
B. I don't like the feeling I get standing on the high board (or I don't go near it at all).

29. A. I like to date members of the opposite sex who are physically exciting.
B. I like to date members of the opposite sex who share my values.
30. A. Heavy drinking usually ruins a party because some people get loud and boisterous.
B. Keeping the drinks full is the key to a good party.
31. A. The worst social sin is to be rude.
B. The worst social sin is to be a bore.
32. A. A person should have considerable sexual experience before marriage.
B. It's better if two married persons begin their sexual experience with each other.
33. A. Even if I had the money I would not care to associate with flighty rich persons like those in the "jet set."
B. I could conceive of myself seeking pleasures around the world with the "jet set."
34. A. I like people who are sharp and witty even if they do sometimes insult others.
B. I dislike people who have their fun at the expense of hurting the feelings of others.
35. A. There is altogether too much portrayal of sex in movies.
B. I enjoy watching many of the "sexy" scenes in movies.
36. A. I feel best after taking a couple of drinks.
B. Something is wrong with people who need liquor to feel good.
37. A. People should dress according to some standard of taste, neatness, and style.
B. People should dress in individual ways even if the effects are sometimes strange.
38. A. Sailing long distances in small sailing crafts is foolhardy.
B. I would like to sail a long distance in a small but seaworthy sailing craft.
39. A. I have no patience with dull or boring persons.
B. I find something interesting in almost every person I talk to.
40. A. Skiing down a high mountain slope is a good way to end up on crutches.
B. I think I would enjoy the sensations of skiing very fast down a high mountain slope.

WURS

	Not at all or slightly	Mildly	Moder- ately	Quite a bit	Very much
As a child, I was (or I had):					
1. Active, restless, always on the go					
2. Afraid of things					
3. Concentration problems, easily distracted					
4. Anxious, worrying					
5. Nervous, fidgety					
6. Inattentive, daydreaming					
7. Hot or short temper, low boiling point					
8. Shy, sensitive					
9. Temper outbursts, tantrums					
10. Trouble with stick-to-it-iveness, not following through, failing to finish things started					
11. Stubborn, strong-willed					
12. Sad or blue, depressed, unhappy					
13. Uncautious, dare-devilish					
14. Not getting a kick out of things, dissatisfied with life					
15. Disobedient with parents, rebellious, sassy					
16. Low opinion of myself					
17. Irritable					
18. Outgoing, friendly, enjoy company of people					
19. Sloppy, disorganized					
20. Moody, had ups and downs					
21. Felt angry					
22. Had friends, popular					
23. Well organized, tidy, neat					
24. Acted without thinking, impulsive					
25. Tended to be immature					
26. Felt guilty, regretful					
27. Lost control of myself					
28. Tended to be or act irrational					
29. Unpopular with other children, didn't keep friends for long, didn't get along with other children					
30. Poorly coordinated, did not participate in sports					
31. Afraid of losing control of self					
32. Well coordinated, picked first in games					
33. (for women only) Tomboyish					
34. Ran away from home					
35. Got in fights					
36. Teased other children					
37. Leader, bossy					
38. Difficulty waking up					
39. Follower, was led around too much					
40. Trouble seeing things from someone else's point of view					
41. Trouble with authorities, trouble with school, visits to					

the principal's office

42. Trouble with the police, booked, convicted

Medical problems as a child:

43. Headaches

44. Stomach aches

45. Constipation

46. Diarrhea

47. Food allergies

48. Other allergies

49. Bedwetting

As a child in school:

50. Overall a good student, fast learner

51. Overall a poor student, slow learner

52. Slow reader

53. Slow in learning to read

54. Trouble reversing letters

55. Trouble with spelling

56. Trouble with math or numbers

57. Bad handwriting

58. Though I could read pretty well, I never really enjoyed reading

59. Did not achieve up to potential

60. Repeated grades ☐ YES ☐ NO

If YES, which grade(s)? _____

61. Suspended or expelled ☐ YES ☐ NO

If YES, in which grade(s)? _____